IN THE CLAIMS

Please amend the claims as indicated below. Additionally, a clean version of all pending claims is also attached herewith as Appendix A.

Please cancel claims 1- 36 and add the following new claims 37-42 .

37. (New) A method for an efficient telecommunications receiver system for accurately decoding a received composite signal having data signal and pilot signal components comprising:

receiving said composite signal and extracting a pilot signal and a data signal therefrom;

calculating a log-likelihood ratio as a function of a channel estimate based on said pilot signal; and

scaling said log-likelihood ratio by a predetermined log-likelihood ratio scaling factor and providing an accurate log-likelihood value in response thereto and computing a primary carrier signal-to-interference ratio; and

decoding said received composite signal based on said accurate log-likelihood value and said data signal.

38. (New) The method of claim 37 wherein said pilot signal and said data signal comprise pilot samples and data samples, respectively.

39. (New) The method of claim 37 further comprising despreading said received composite signal in accordance with a predetermined spreading function and providing a despread signal in response thereto.

40. (New) A method for providing an accurate log-likelihood value to improve receiver performance for a wireless communications system, comprising:

extracting a pilot signal and a data signal from a received composite signal;

computing a carrier signal-to-interference ratio based on said pilot signal and said data signal and providing first signal-to-interference ratio and a second signal-to-interference ratio based in response thereto;

computing a log-likelihood ratio scaling factor based on said a first signal-to-interference ratio and said second signal-to-interference ratio;

calculating a log-likelihood ratio as a function of a channel estimate based on said pilot signal; and

scaling said log-likelihood ratio by said log-likelihood ratio scaling factor and providing said accurate log-likelihood value in response thereto.

41. (New) A method for increasing the signal-to-noise ratio of a receiver employing reference symbol aided demodulation, comprising:

combining information from a reference signal transmitted over said channel with information from a corresponding known transmitted reference signal to obtain an estimate of a channel over which said reference symbol is transmitted by a transmitter and received by said receiver;

calculating a log-likelihood ratio estimate for a data signal received by said receiver over said channel, said log-likelihood ratio estimate a function of said received data signal, said channel estimate, and a noise variance of said signal;

applying a scaling factor to said log-likelihood ratio estimate to provide an accurate log-likelihood ratio, said scaling factor based on a noise variance of said channel estimate, said noise variance of said data signal, and an average of received energy per bit in said data signal; and

employing said accurate log-likelihood value to demodulate said received data signal.

42. (New) A method for a communication system employing pilot assisted coherent demodulation, comprising:

encoding a data signal in accordance with a Turbo code and transmitting said data signal with a pilot signal;

receiving said data signal and said pilot signal and providing an estimate of said channel based on said received pilot signal based on a turbo decoding and a priori knowledge of said pilot signal;

generating an accurate log-likelihood ratio that is a function of a noise variance of said data signal, a noise variance of said estimate of said channel, an average received energy per information bit included in said data signal, and said data signal; and

employing said log-likelihood ratio as a metric to demodulate said received data signal.

37. A method for an efficient telecommunications receiver system for accurately decoding a received composite signal having data signal and pilot signal components comprising:

receiving said composite signal and extracting a pilot signal and a data signal therefrom;

calculating a log-likelihood ratio as a function of a channel estimate based on said pilot signal; and

scaling said log-likelihood ratio by a predetermined log-likelihood ratio scaling factor and providing an accurate log-likelihood value in response thereto and computing a primary carrier signal-to-interference ratio; and

decoding said received composite signal based on said accurate log-likelihood value and said data signal.

38. The method of claim 37 wherein said pilot signal and said data signal comprise pilot samples and data samples, respectively.

39. The method of claim 37 further comprising despreading said received composite signal in accordance with a predetermined spreading function and providing a despread signal in response thereto.

40. A method for providing an accurate log-likelihood value to improve receiver performance for a wireless communications system, comprising:

extracting a pilot signal and a data signal from a received composite signal;

computing a carrier signal-to-interference ratio based on said pilot signal and said data signal and providing first signal-to-interference ratio and a second signal-to-interference ratio based in response thereto;

computing a log-likelihood ratio scaling factor based on said a first signal-to-interference ratio and said second signal-to-interference ratio;

calculating a log-likelihood ratio as a function of a channel estimate based on said pilot signal; and

scaling said log-likelihood ratio by said log-likelihood ratio scaling factor and providing said accurate log-likelihood value in response thereto.

41. A method for increasing the signal-to-noise ratio of a receiver employing reference symbol aided demodulation, comprising:

combining information from a reference signal transmitted over said channel with information from a corresponding known transmitted reference signal to obtain an estimate of a channel over which said reference symbol is transmitted by a transmitter and received by said receiver;

calculating a log-likelihood ratio estimate for a data signal received by said receiver over said channel, said log-likelihood ratio estimate a function of said received data signal, said channel estimate, and a noise variance of said signal;

applying a scaling factor to said log-likelihood ratio estimate to provide an accurate log-likelihood ratio, said scaling factor based on a noise variance of said channel estimate, said noise variance of said data signal, and an average of received energy per bit in said data signal; and

employing said accurate log-likelihood value to demodulate said received data signal.

42. A method for a communication system employing pilot assisted coherent demodulation, comprising:

encoding a data signal in accordance with a Turbo code and transmitting said data signal with a pilot signal;

receiving said data signal and said pilot signal and providing an estimate of said channel based on said received pilot signal based on a turbo decoding and a priori knowledge of said pilot signal;

generating an accurate log-likelihood ratio that is a function of a noise variance of said data signal, a noise variance of said estimate of said channel, an average received energy per information bit included in said data signal, and said data signal; and

employing said log-likelihood ratio as a metric to demodulate said received data signal.